

## PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

2003-1435 / 24061.911

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on \_\_\_\_\_

Signature \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Application Number

10/802,087

Filed

March 16, 2004

First Named Inventor

Ching-Yu Chang, et al.

Art Unit

1714

Examiner

Stephen K. Ko

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

applicant/inventor.

assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)

attorney or agent of record. Registration number 30,222

attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 \_\_\_\_\_



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July 30, 2010

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.  
Submit multiple forms if more than one signature is required, see below\*.



\*Total of 1 forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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## REASONS

The "final" Office Action mailed on April 7, 2010 rejected Claims 2-27. For reasons explained below, it is respectfully submitted that the claim rejections are clearly not proper and are without basis, because each lacks an essential element needed to establish a *prima facie* rejection, and therefore has a clear legal deficiency.

### Independent Claim 15 - Fukami

Independent Claim 15 stands rejected under 35 U.S.C. §102 as anticipated by Fukami PCT Publication No. WO99/49504. The PTO explains in MPEP §2131 that, to anticipate a claim under §102, a reference (1) must disclose each and every element recited in the claim, and (2) must also disclose these elements arranged in the manner recited in the claim.

Figures 2 and 3 of Fukami disclose a liquid supply apparatus 5 that can supply an immersion liquid 7 to an immersion lithography region through four conduits 21, 22, 27 and 28. For example, see lines 31-37 on page 19 of the machine-generated English translation of Fukami that Applicants previously submitted. With reference to lines 1-2 on page 18 of this translation, Fukami explains that "pure water is used as liquid 7". The Examiner never identifies any surfactant in Fukami, and never identifies any structure in Fukami that actually provides a surfactant to any fluid. The informal machine translation of Fukami mentions replacing a dirty lens, but does not appear to contain any mention of the use of any surfactant, or any cleaning liquid.

Applicants' Claim 15 recites:

means for providing the first fluid containing no surfactant; . . . and  
means for providing a surfactant to the first fluid to form a second fluid to reduce  
an adherence of floating defects to the wafer or the objective lens.

MPEP §2182 explains that examination of a means-plus-function limitation must involve the following "two-step" analysis:

1. In the first step, the Examiner must show that the prior art reference performs identically the same function that is specified in the means-plus-function limitation.
2. If and only if the requirement in the first step is met, then in the second step the Examiner looks to the specification and identifies all structure corresponding to that function, and then must show that the prior art structure or step is identical or equivalent to the structure, material, or acts described in the specification.

In regard to the first step, MPEP §2182 emphasizes that "the application of a prior art reference to a means . . . plus function limitation requires that the prior art element perform the identical function specified in the claim" (emphasis added). But in the Office Action, the Examiner skips the first step of this two-step analysis.

For example, Claim 15 calls for "means for providing a surfactant to the first fluid". Under the first step of the analysis, the Examiner must show Fukami has structure that performs exactly this recited function. However, the Examiner fails to make this required showing. Instead, the Examiner asserts it is sufficient if Fukami has structure that is capable of performing the claimed function, even though the structure does not actually perform the claimed function in Fukami's system. **But the Examiner's assertion does not meet the explicit requirement in MPEP §2182 that Fukami's system must have structure that is in fact performing identically the same function that is recited in the claim.** In a sense, the Examiner is asserting that it might be obvious to modify Fukami to perform the claimed function, but the rejection of Claim 15 is for anticipation under §102, not obviousness under §103. The Examiner also cites a number of court decisions, and attempts to argue that they support the assertion that Fukami's structure does not need to perform identically the same function that is recited in Claim 15. However, MPEP §2182 very clearly specifies that the reference must actually perform the claimed function, and the cases cited by the Examiner do not trump the policy of PTO management as set forth in MPEP §2182.

The Examiner also improperly performs the second step of the two-step analysis. More specifically, the Examiner takes each "means" limitation in Claim 15, and replaces it with structural language formulated by the Examiner, thereby yielding a completely rewritten version of Claim 15. The Examiner then asserts that this rewritten claim is anticipated by Fukami. However, the Examiner's rewritten claim is significantly different from Applicants' Claim 15. As just one example, the Examiner takes Applicants' "means for providing a surfactant to the first fluid", and replaces it with the phrase "a secondary supply reservoir". However, a secondary supply reservoir is not capable by itself of actually carrying out the recited function of "providing a surfactant to the first fluid". Stated differently, the Examiner does not accurately map functional claim language to disclosed structure. If the actual language of Claim 15 is properly taken into account, in the manner required by the MPEP, Claim 15 is clearly distinct from Fukami.

For the reasons discussed above, it is respectfully submitted that Fukami does not disclose each and every element recited in Claim 15, and therefore does not meet the requirements for anticipation under §102 that are set forth in MPEP §2131. Consequently, the §102 rejection of Claim 15 has a clear legal deficiency, because it lacks an essential element needed to establish a *prima facie* rejection. Therefore, the §102 rejection of Claim 15 is clearly not proper and is without basis, and it is respectfully requested that it be withdrawn.

Independent Claim 15 - Deng and Hazelton

Independent Claim 15 also stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Deng U.S. Patent Application Publication No. 2005/0164502 and Hazelton U.S. Patent Application Publication No. 2006/0023185. On page 11 of the Office Action, the Examiner admits that Deng does not disclose the recited "means for providing a surfactant to the first fluid to form a second fluid to

reduce an adherence of floating defects to the wafer or the objective lens". The Examiner therefore turns to Hazelton '185. In lines 15-19 on page 11, the Examiner asserts that Figure 10 of Hazelton '185 discloses:

. . . the pipe on top of a valve #25 . . . which is fully capable of providing a surfactant to the immersion liquid to reduce an adherence of floating defect to the wafer or the optical element.

As discussed above, MPEP §2182 specifies that, when rejecting a means-plus-function limitation, the Examiner must show that the structure in the reference is in fact actually performing identically the same function that is recited in the claim. But in the present situation, **there is no identity of function**, because the indicated structure in Hazelton '185 does not actually perform (1) Applicants' recited function of "providing a surfactant to the first fluid", or (2) Applicants' recited function of reducing "an adherence of floating defects to the wafer or the objective lens".

As explained in detail in the remarks of Applicants' last Response, Hazelton '185 teaches that separate and distinct fluids are used (1) for immersion lithography and (2) for cleaning. Hazelton '185 teaches that the cleaning fluid has an "affinity" for the immersion fluid, and can thus draw the immersion fluid out of an optical component such as an immersion lens. But contrary to the assertions of the Examiner, Hazelton '185 does not teach that the cleaning fluid is mixed with the immersion fluid. In fact, if Hazelton's cleaning fluid and immersion fluid were mixed in the manner proposed by the Examiner, the affinity of the cleaning fluid for the immersion fluid would be destroyed by the immersion fluid present in the mixture. As a result, the cleaning fluid would not have any remaining "affinity" that could later draw immersion fluid out of an optical component such as a lens. Thus, the proposed modification would change a principle of operation of Hazelton '185 and, as explained in MPEP §2143.01, a modification that changes a principle of operation is never an obvious modification. Therefore, and contrary to the assertions in the Office Action, Hazelton would never mix his cleaning liquid with his immersion liquid. This is why the indicated portions of Hazelton never mention any such mixture, because it would render Hazelton's cleaning liquid inoperative, and thus change a principle of operation.

Claim 15 also recites providing a surfactant to "reduce an adherence of floating defects to the wafer or the objective lens". However, Hazelton's system does not perform this specific function. The cleaning liquid disclosed in Hazelton '185 is different from the surfactant-containing fluid recited in Claim 15. Hazelton's cleaning liquid attracts the immersion liquid, and can extract the immersion liquid from a lens. The indicated portion of Hazelton '185 does not contain any teaching that Hazelton's cleaning liquid actually reduces the adherence of floating defects to a wafer or a lens. Thus, the cleaning liquid in Hazelton '185 is different in composition and function from the surfactant-containing fluid recited in Claim 15.

For the reasons discussed above, it is respectfully submitted that the §103 rejection of Claim 15 has a clear legal deficiency, because it lacks essential elements needed to establish a *prima facie* case of

obviousness. Therefore, the §103 rejection of Claim 15 is clearly not proper and is without basis, and it is respectfully requested that it be withdrawn.

Independent Claims 6, 9 and 20

Independent Claim 6 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton '185 with Zhang U.S. Patent Application Publication No. 2005/0161644 and Amblard U.S. Patent No. 7,056,646. Independent Claim 9 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton '185 with Lyons U.S. Patent No. 7,125,652 and the Amblard patent. Independent Claim 20 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton '185 with Amblard. Claim 6 includes a recitation of:

performing a light exposing operation on the wafer using an objective lens immersed in a first fluid containing surfactant; and  
cleaning the objective lens after the light exposing operation using a second fluid having a higher surfactant concentration than the first fluid.

Claim 9 includes a recitation of:

performing a light exposing operation on the wafer using an objective lens immersed in a first fluid that does not contain surfactant; and  
cleaning the objective lens using a second fluid comprising a surfactant-spiked water immersion fluid.

Claim 20 includes a recitation of:

performing a light exposing operation on the wafer using an objective lens immersed in a first fluid; and  
cleaning the objective lens using a second fluid containing surfactant.

In regard to obviousness under §103, MPEP §2141.02 specifies that:

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. (Emphasis in original).

As to the “cleaning” recited in each of Claims 6, 9 and 20, the Office Action admits that Hazelton '185 does not disclose the use of a liquid containing a surfactant, even when considered with either Zhang or Lyons. Therefore, in each rejection, the Examiner turns to Amblard's disclosure of an immersion liquid that contains both a developer and a surfactant. However, the specific thrust of Amblard is that the disclosed immersion liquid is used only during immersion lithography, thereby improving the overall efficiency of the immersion lithography process. As explained in detail in the remarks of Applicants' last Response, Amblard repeatedly

states that, after immersion lithography has been performed, the immersion lithography apparatus is not exposed to a developer again, and thus is not exposed again to the developer-containing immersion liquid. The Examiner asserts that Amblard's immersion liquid (containing a developer) could be used as a cleaning liquid, and in particular could be supplied into the immersion lithography arrangement for cleaning after a different immersion liquid is removed. However, Amblard explicitly teaches away from this, by repeatedly stating that "A developer is not contacted with the immersion lithography arrangement after the immersion lithography fluid is removed" (lines 58-60 of column 7, and lines 47-50 of column 8).

The Office Action asserts that Amblard "does not teach away, since Hazelton . . . does not criticize, discredit, or otherwise discourage using a developer . . . after immersion lithography fluid is removed" (emphasis added). However, that this assertion makes no sense, because the issue of whether Amblard teaches away depends solely on Amblard, and not on anything in Hazelton. Moreover, the Examiner admits that Hazelton is silent on this particular point, and Hazelton's silence does nothing at all to counteract the fact that Amblard clearly teaches away. A person of ordinary skill in the art would not be motivated to use Amblard's immersion liquid in a manner directly contrary to what is explicitly taught by Amblard.

Since it is well recognized that teaching away from a claimed invention is a *per se* demonstration of lack of *prima facie* obviousness, it is respectfully submitted that Hazelton '185 and Amblard do not factually support a *prima facie* case of obviousness under §103 with respect to any of Claims 6, 9 and 20, with or without regard to Zhang or Lyons. Accordingly, it is respectfully submitted that the §103 rejections of Claims 6, 9 and 20 each have a clear legal deficiency, because they each lack an essential element needed to establish a *prima facie* rejection. Therefore, the §103 rejections of Claims 6, 9 and 20 are clearly not proper and are without basis, and it is respectfully requested that they be withdrawn.

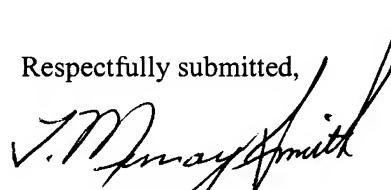
#### Dependent Claims

Claims 2-5 and 7-8, Claims 10-14, Claims 16-19 and Claims 21-27 respectively depend from Claim 6, Claim 9, Claim 15 and Claim 20, and are also believed to be patentable, for example for the same reasons discussed above in association with Claims 6, 9, 15 and 20, respectively.

Date: July 30, 2010

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